GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, JANUARY 31, 1894.

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A German View of Landscape-art in America.

IN an address at the December meeting of the Prussian Horticultural Society, with regard to his recent journey in the United states, Dr. Wittmack is reported to have rendered full justice to the efforts which had been made to give the Horticultural Department of the Chicago Fair the grandeur expected by the outside world. He mentioned in detail the names of the principal exhibitors, so numerous as regards America itself, although fewer than one might have expected as regards Europe, notwithstanding the fact that Germany was able to boast of having been represented by sixty horticultural establishments. With respect to the public gardens and parks which Dr. Wittmack had visited, his praises were unreserved. But the motive to which he attributed the excellence of these artistic creations seems so singular that one is tempted to question the correctness of the report. He does not credit it to that instinctive love of beauty and of nature which is especially strong in the Anglo-Saxon race, but finds its motive in that rigorous observance of the Sabbath which in many places deprives the American populace on Sundays of all forms of enjoyment except those which are practicable out-of-doors.

We need hardly say to our American readers that this is a mistaken view. Our parks and pleasure-grounds have almost always been established and designed with the needs of the poor, as well as of the rich, in view, and more detailed arrangements for their general accommodation and their sports have been provided here than has often been the case in European parks. Of course, too, it has always been understood that workingmen and their families, here as in Europe, are able to enjoy every form of recreation more freely on Sundays than on other days of the week. But it is not probable that a definite desire to make up out-of-doors for the strictness of our indoor Sunday observances has ever been a conscious motive with our municipalities or our landscape-artists. New York, for instance, lags behind Chicago in the relative amount of ground improved for general park purposes; yet, in Chicago, theatres and similar indoor places of amusement have long been open on Sunday, while in New York they are closed, and it is only within a year or two that our museums and libraries have opened their doors on this day.

It is probably true that the example set by our park authorities in allowing on Sunday many forms of amusement, like boating and skating, for example, has had an influence in bringing about a more liberal use of the museums for which the people have paid, and the contents of which they have small chance to enjoy during the week; and the value of Central Park, in demonstrating that the people of New York, whether rich or poor, crave rational, orderly forms of amusement on Sunday, and may be trusted to indulge in them discreetly, can hardly be overestimated Still, to believe this does not justify the belief that Central Park or any of our other pleasure-grounds were established with a definite desire to make up out-of-doors for the overstrictness of American sabbatical customs in general. The hard struggle which was made before the grounds around the Chicago Fair buildings could be opened on Sunday, might have shown Dr. Wittmack the error of his assumption.

Further on in his address, which was full of the agreeable souvenirs of his transatlantic excursion, Dr. Wittmack praised the prodigious development of American horticulture, and declared that "it has freed itself in many directions from the tutelage of Europe, and no longer needs those importations from across the sea upon which it formerly depended." Even for "that wandering of the imagination which is shown in mosaic floral designs, too often covering the turf with bizarre imitations of the most strikingly prosaic kinds," Dr. Wittmack had a kind word to say, although he explained that they would be considered contrary to good taste in Germany. So, in truth, they are considered in America, in places where the best taste finds free expression in public pleasure-grounds. The foreigner finds none of them in Central Park, in Prospect Park, or in Franklin Park; and, although the Boston Public Garden contains too many pattern-beds, these include none of those effigies of men and things and animals in high-relief which so shock the eye in the South Park, at Chicago. In our eastern states, we think, objects comparable to these can be discovered only in cemeteries where control is vested, not in a municipal body or in an artist, but in some journeyman whose education has not kept pace with his employer's vague desire to "beautify" his grounds, or with his own wish to show how excellently he can grow plants under difficult conditions. Moreover, that less serious offense against refined taste, which displays itself in too many and too gaudy pattern-beds, is seen more often in Europe than in America. If the parks of Germany are free from such common-place treatment, this is not the case with the parks of France. Crudities in color and shape have been perpetrated in the Bois de Boulogne and in the Parc Monceau, in Paris, the like of which conspicuously displayed among distinctly naturalistic surroundings can hardly be seen in the older settled regions of this country. So far as our experience extends, some of the parks of Chicago are more conspicuous offenders in the way of mosaic decoration than any others, although excellent taste is shown in some parts of the same city, as, for instance, in the graceful, naturalistic planting of flowers and flowering shrubs along many portions of the Drexel Boulevard. It may distress our German friends to learn that we have heard the glaring park defacements of some western cities explained by the preponderance of the German element in their population. The correctness of this explanation may well be doubted.

IN a report of the New York State Forest Commission, offered last week to the Legislature, special attention was invited to the necessity of some action relating to the Catskill forests. During several years past there has been a great deal of talk, without much effective action, concerning the North Woods, but the fact has been generally over-

looked that the forest area of the Catskill region is three-fifths as large as that of the Adirondacks. Of this woodland the state already owns about 50,000 acres in scattered lots, and it is in every way desirable that this should be made a solid tract by the purchase of additional lands, so that the whole could be brought under systematic forest management. The Commission thinks that it would be advisable for the state to acquire one hundred thousand acres of forest lying near the territory which it already owns, and they have presented a bill which includes provision for this purpose.

It is greatly to be desired that this Catskill forest should be secured at once. Divided counsels, repeated changes of plan and endless delays have left the Adirondack problem a more difficult one to grapple with every year since Horatio Seymour wisely urged the state to take possession of it, and every succeeding year there has been less forest to preserve, and what remained has been less worth preserving. It will be a cause of lasting regret if this effort to secure a Catskill Forest Reserve should only prove the beginning of more discussion, more postponement, and more half-hearted and shifting purpose. That policy has been tried long enough already.

The Megalithic Humboldt Monument in Berlin.

THE city of Berlin, although not among the oldest of the great capitals of Europe, is growing with a rapidity that rivals the giant cities of America. This continual expansion means, on the one hand, the destruction of countless old and beautiful gardens, and, on the other, a longing to plant new ones wherever this is possible. These changes bring sadness as well as pleasant anticipation, for, certainly, it is not an unmixed pleasure to live in an epoch of perpetual demolition. Buildings can be quickly reconstructed, but when groves and shrubberies are swept away their restoration is the work of years, still it is comforting to know that public parks and gardens are multiplying now in front of the gates of the capital of Germany.

Among suburban places of recreation our old and matchless Thiergarten shows the fresh beauty of the present and the majesty of the past. Its essential elements are Nature's own. Art has embellished its great forest-features, but it has not largely altered them. Moreover, being the only park adjacent to the richest quarter of the city, it is conspicuously preferred by society as a place for its promenades. On the other hand, to the northward of the city, is the Humboldt-hain, still young, but full of promise for the future. From day to day this garden of the people is growing into new beauty. Its vast verdurous expanse, less fashionable than the Thiergarten, but more artistically conceived and enriched with a larger number of botanical treasures, was established by the Berlin municipality for the especial purpose of providing an outdoor place of recreation for the working-classes at the very door of their homes. This park was designed and planted by Meyer, who died about ten years ago. In his soul the genius of a Pückler seemed to have been born anew, and in the service of one of the great municipalities of Europe a career was opened to him which gave free scope to his talent.

The name chosen for this park is an evidence that the greatest naturalist of his century still lives in the memory of his fellow-citizens. To this day the splendor of his name adds lustre to his natal town, and for the stranger Berlin will always remain the city of Humboldt. Some doubt exists as to the exact spot of his birth, but his baptism took place in Berlin, and he always regarded himself a true child of that town, and during his whole life held it in unalterable affection. Berlin really owed him, therefore, the tribute of its gratitude, and in giving his name to its recently established north park the city not only honored the man who is venerated in two hemispheres, but also honored itself by demonstrating that, in spite of the prevailing power of military traditions in Prussia, it never ceased to congratulate itself on having added this star of the first magnitude to the galaxy of science.

Nevertheless, it was fated that, a short time after his death, the popularity of Humboldt should pass through a season of apparent eclipse. Was it because his convictions, too liberal for the friends of a king, were posthumously published through the indiscretion of a friend? Was it because of a total reversal of public opinion consequent upon three consecutive wars? Under the device, "Blood and Iron," a different form of hero-worship seemed to prevail, but Berlin remained unshaken in its prediction. Holding a position that was delicate in many ways, the administration of this royal city gave a fine proof of its independent spirit, by identifying itself with the traditions of the spirit of liberty, creating a park consecrated at once to the people and to the memory of so enlightened a soul as Humboldt's.

This courageous civic act was approved by the best citizens of Berlin. The new park was in itself a significant monument to the genius who had given it his name. And, moreover, by tardily erecting a statue in front of the court of the University, official Prussia had canceled a debt of honor which had remained too long unpaid. But the ardor of Humboldt's admirers was not yet contented; it aspired to something beyond the powers of the sculptor's art. At the end of that triumphal street, Under den Linden, this art had done its best to immortalize the great man. It seemed as though Nature had consciously reserved to herself the power to give him a still more original and more appropriate monument than the chisel could accomplish, and imagination boldly conceived of something which should resemble the granite cromlechs of prehistoric times.

The idea for this second Berlin monument to Humboldt took form in the mind and under the hand of one of the most distinguished citizens of the town. It was Ernest Friedel, municipal counselor, who gave the impulse, and then, acting with energy, put into execution, on a soil predestined by the name it bore, the plan for the new shrine. The Marsh of Brandenburg is situated in a vast plain, far from any mountains. No minerals exist there except scattered boulders—those "foundlings" which were transported to us by the disturbances of the glacial epoch. Nowhere do the foundation-rocks pierce the soil to recall, amid these sands and meadows, the hills and ridges of other lands. Even the great isolated stones are becoming rare, having been used in the construction of buildings and highways. But where they still exist they attract attention all the more strongly on this account.

It was by the use of these accumulations of boulders that the tumuli of very ancient times were built—monumental sepulchres of forgotten generations—"Graves of the Huns" or menhirs—in front of which to-day civilized man pauses in wonder, and disturbs only with regret. The idea was quickly conceived that the memory of Humboldt should be honored with a prodigious cairn. Unchiseled stone was appropriate for him, since he began his career as a miner and geologist. The archæological studies of Herr Friedel pointed toward the same end, and I had the happiness to assist these slowly ripening projects with my most ardent sympathy. At the outset the intention was to construct the cairn with stones picked up on all the sites, in every part of the globe, which Humboldt had visited, or, at least, which were connected with his studies. The auriferous quartz of the Ural was there to meet the dolomite of the Tyrol and the obsidian of the Peak of Teneriffe; the basalts of the banks of the Rhine were to be associated with the lavas of Vesuvius and of Chimborazo. This plan was not without its attractions, and with more perseverance there would have been nothing impracticable about it; but, in spite of offers of assistance from every side, it was finally abandoned, and, perhaps, not to the disadvantage of the monument; for, from an æsthetic point of view, it would have been a mixture of very heterogeneous elements that would have violated the geological conscience of Humboldt. Certainly it was better to confine the material

to the products of this land itself. In the severe grandeur of its accomplishment the fundamental idea now appears dignified and appropriate, and speaks to the heart with a truly antique simplicity.

Here, we are far away from the brilliant and aristocratic quarters of Berlin, in a faubourg peopled with workingmen and humble folk, and somewhat ironically called the "Voightland." On a gently sloping elevation rises the primitive structure of rough stones, vaguely recalling the cyclopean walls of Greece or Italy. No trace of the hand of man is visible upon it. Two enormous longitudinal blocks (see page 46) seem to have been set, one upon the other, by the arms of giants. A third, equally colossal, but round in shape, lies beside them, while a multitude of large and small stones advance unsymmetrically to the right and the left, in an irregularity which is at once harmonious and picturesque, the whole being a faithful copy of primitive Nature as revealed upon this very soil.

The upper of the two great monoliths was found near Charlottenburg. It is of a pure deep rose-color and strangely traversed by irregular blackish veins, which mingle upon its surface as in a mystic design. With the other, placed at a lower level, it forms a little grotto, which is sealed with a slab of marble—the only trace of human art—bearing, in German, this inscription:

TO THE MEMORY OF A. VON HUMBOLDT,
THE CITY OF BERLIN.
1869. 1887.

A Lotus-blossom is sculptured beside it. The date 1887 marks the completion of the monument, which, contrary to custom, was never inaugurated by any official solemnity, but only by a modest ceremony organized by the Historical Society of Berlin, with Herr Friedel, as president, at its head.

A living spring of water trickles from the concavity of the rock, to disappear in the neighboring grounds as a little rivulet. From the platform in front of the cairn there opens a charming view across the vast lawn, separated into two parts by a bosquet of foliage. Farther away the eye wanders amid the verdure of the park, rich in rare plants, beyond which are groups of houses which, according to the character of the district, have nothing remarkable about them. Above all rest the golden vapors of the city.

Happily, trees existed here before building was begun. The middle distance behind the megalithic monument is, therefore, verdurous, with a little grove of Locusts already fully grown. A new plantation would have contrasted too forcibly with the archaic aspect of the structure. Citizens of the great Republic so beloved by Humboldt, may well consider it an homage to their country that trees of an American species throw their shade upon this sacred soil. Certain Spruces from Norway, sickly and smothered by the urban atmosphere, count for little. The plants which adorn the cenotaph itself are few and provisional. Lost among these blocks of stone, they will always play a subordinate rôle. In the near vicinity, however, a richer development of vegetation will probably be secured later on. At present some Heaths and Saxifrages suffice to give an appearance of verdure to these solid masses which nourish nothing else except some dwarf Yews and a little Ivy. For my own part, I proposed, as a setting for this spot, surroundings of grandiose vegetation composed of trees and shrubs connected either with the person of Humboldt or with his labors and his writings. I even developed this idea in a pamphlet which has been published. Thus far nothing of the sort has been realized. With regard to one point, however, I am sure that my intention will be accomplished. Recently two magnificent specimens of Dracæna Draco have been brought here as a present from a resident of Teneriffe. They are soon to be placed as sentinels in front of the monument; in pots, of course, as their tropical origin forbids their being planted in the soil itself. These classic trees, still young, will stand as witnesses to an incident intimately connected with the juvenile impressions of Humboldt. There was formerly in Berlin an ancient specimen of this Dracæna, which had lived for more than a century in the Botanical Garden; and it first drew the attention of the boy to the marvelous vegetation of foreign lands, filling him with an ardent desire to study it more closely himself some day. Thus, thanks to the vivid imagination of a child, the first step was taken toward so many discoveries, and toward the creation of botanical geography. This was the writing by the way-side, showing afar off those enchanted regions which the unrivaled traveler was later to visit and to conquer for science. It will be agreed that the two monocotyledons from the Canary Islands deserve their places.

The fateful old Dracæna no longer exists; but it is pleasing to think of the young plants in question as the descendants of this colossus of Orotavo so well described by Humboldt and so well known to myself. Alas, a tempest has uprooted this witness to another age.

Berlin. *C. Bolle.*

Notes for Mushroom-eaters.—II.

WE can now pass to the principal modifications of the toadstool stage, since the variations in the spawn do not enable the fungus-gatherer to distinguish poisonous from edible forms. After a button has reached a certain size, if we section it longitudinally, we see the beginning of the stalk in the centre, and closing over it the part which is to expand into the top. The stalk, which is called by botanists the stipe, soon pushes upward, and the top, the pileus, opens, and, according to the species, there will be found on the underside a series of plates like blades of a knife, called gills, radiating from the stipe; a compact mass of tubes, lying side by side, and pointing downward, or a series of teeth. The reproductive bodies, corresponding in function to seeds, are borne almost always in groups of fours on the surface of the gills, tubes or teeth, and easily drop off when ripe. They are microscopic taken individually, but collectively appear as a mass of powder, which can easily be caught by cutting off the stipe and letting the pileus rest for a few hours, with the gills or tubes downward, on a piece of paper. A knowledge of the microscopic details of a Toadstool are not necessary to the understanding of the rules for distinguishing edible from poisonous forms, and the reader wishing information on the subject should consult botanical treatises. For our purpose we can classify the bulk of the edible and poisonous fungi under the heads of Gill-bearing fungi (Agaricineæ), Tube-bearing fungi (Polyporieæ) and Teeth-bearing fungi (Hydneæ). After obtaining a conception of the essential points of these three groups we can pass to a brief consideration of a few smaller groups in which edible forms are found.

Let us begin with the Gill-bearing fungi, an enormous group of plants familiar to every one. It is very important at the outset to learn to recognize what are the constant marks to be found in species of this group as distinguished from the variable characters which cannot be depended upon. Naturally, the uninitiated consider the color of the pileus to be important, but it should be remarked that the color of the pileus cannot be depended upon, for, while there are species in which the pileus has a nearly constant color, there are others in which it may vary from brilliant red to brilliant yellow, and with age most species lose their bright colors. If the color of the pileus in any given species is variable, and therefore of comparatively little importance, it should be borne in mind that the color of the spores, on the other hand, is practically constant, and in distinguishing edible from poisonous forms it is a question of primary importance, What is the color of the spores? Although the color of the spores can in many cases be inferred from the color of the gills, tubes or teeth when mature, one cannot always be certain. The only sure way is to observe the color of the spores which have fallen. Since many species have white or brown spores, they are

more easily seen if, in the treatment for collecting spores above described, colored paper of some neutral tint is used.

The color of the spores having been observed, the next point is to notice the peculiarities of the stipe. Whether it is hollow or solid, or has a sort of flocculent pith, is easily settled. The next point, and a more important one, is whether or not there is a ring round the stipe. The ring, or annulus, is, in comparatively few cases, strictly speaking, a ring. In most cases it might better be called a collar, for it is a membrane attached to the stipe, and either hangs down or, less frequently, is erect. In the Parasol-fungus (Fig. 5) and some others, it is really a ring free from the stipe, so that it sometimes drops down and escapes notice at first. We have said that the ring is a membrane, but the membrane may be reduced to very narrow proportions,

Fig. 5.—Agaricus procerus, the Parasol-fungus (two-thirds natural size)—edible.

or even to a small flocculent band around the stipe. The way in which the ring is formed may be seen on examining a young Toadstool before it has fully expanded, when it will be noticed that a membrane, the veil, extends from the stipe to the outer edge of the pileus, concealing from view the gills behind. As the pileus expands, this membrane ruptures and a part remains attached to the stipe, forming the ring, while a part remains attached to the edge of the pileus as a ragged appendage.

A very important point to be observed, more important than any before mentioned, is whether the base of the stipe is enclosed in a sort of ruptured bag, the volva. A volva is present in our most poisonous species, and is either plainly visible as a membraneous bag, ruptured by the growth of the stipe upward, or it remains adherent to the base of the stipe in the form of large flakes or scales.

Other points to be noted are the character of the gills; whether sharp, like a knife-blade, or blunt and ridge-like; whether the inner edges of the gills do not extend up to the stipe, or whether they extend downward over it; whether, on breaking or cutting, there exudes a juice, and, if so, its color and the change of its color on exposure to the air; the density and texture, whether dry and hard or soft and watery; and whether, as it begins to decay, the fungus simply rots and becomes putrid, or quickly turns into an ink-like fluid. Most of these points can be settled at a glance. Lastly, what is not likely to be overlooked, the taste and odor should be noticed. Some persons, whose sense of smell is acute, are able to distinguish, especially with practice, many differences in odor, but most persons can recognize in fungi only certain peculiar odors, as that of anise, of flour, a certain fruity odor, an ammoniacal odor, a putrid odor, etc., found in certain species, and to them the mass of fungi have what they call a fungus odor not easily described. In most critical cases the sense of smell does not help much in distinguishing species, and it may be doubted whether those most confident in their ability to distinguish delicate shades of odor are as skillful as they believe themselves to be. As an instance of the uncertainty concerning odors may be mentioned a case where the writer asked a number of ladies and gentlemen to describe the odor of a quantity of the fungus Craterellus lutescens. The persons were questioned separately that one might not be influenced by the opinion of the others, and it turned out that all the gentlemen described the odor as a pleasant odor of fruit, while all the ladies said that the fungi smelled like pork. It should also be said that odors of fungi are transient, or, perhaps, intermittent, and in one species, Russula fœtida, although the odor, as the name implies, is usually repulsive, it is sometimes pleasant, like that of bitter almonds. Taste is a much better guide than smell, but the beginner should be warned that, although tasting may sometimes show that it would be the part of common sense to avoid experimenting with certain acrid or nauseous species, on the other hand the absence of any disagreeable taste is not the slightest indication that a fungus is not dangerous. Our most poisonous species are all the more dangerous from the fact that they have rather a pleasant, certainly not an unpleasant, flavor. The delicate flavors of fungi so much prized by connoisseurs are only brought out by cooking, and, as yet, neither the American palate nor the American cook has been educated to the point of making fungus-eating with us the art which it is in France and some other countries. Mycophagy here is still in its infancy.

Harvard College. *W. G. Farlow.*

Entomological.

The Plum Curculio as an Apple Pest.

THE Plum Curculio, Conotrachelus nenuphar, has long been recognized over a wide range of our country as one of the greatest obstacles to successful Plum-growing, and the insect has been known as a persistent enemy of other stone-fruits, such as the peach, apricot and cherry. For a good many years occasional references have appeared in entomological journals to its injury to apples, but it has very rarely been recorded as doing any serious injury to this crop; and the damage has seemed to be mainly from the punctures of the mature insect either for food or for the purposes of oviposition, for the larvæ seldom appeared to thrive and reach full development.

During the past season in a portion of an orchard at Chateauguay, on the south side of the St. Lawrence River, opposite Montreal Island, the plum curculio destroyed hundreds of bushels of apples, and in some varieties of the fruit appeared to have no difficulty in living its full larval period, and in leaving the apples in due season, and in good condition, to pupate and reach the beetle stage. Some apples had apparently been punctured and had larvæ in them for a time, but these seemed to have disappeared

before they could have fully grown. In such cases the apples were always more or less misshapen and bore the traces of the larvæ inroads wherever they had attempted to penetrate. In those apples in which the curculio larvæ had thriven their burrowings in the flesh were quite conspicuous in all fruit that remained on the trees, but most of the infested apples fell to the ground in early summer and the larvæ escaped, entered the soil to pupate and re-appeared as beetles at the end of July and in August and September. During the late summer and the autumn large numbers of the beetles could be found on the upper sides of the fruit, generally near the stems, puncturing little holes in the fruit and feeding upon it. These holes were never very deep, but were commonly from an eighth to a quarter of an inch in diameter, and sometimes much larger. A good figure, showing the character of this injury, is given on page 383 of the second volume of *Insect Life*.

But, as in the case of the Plum, it is when the larvæ infest the young fruit that the principal damage is to be feared, because the effect of the work of the larvæ is to cause the fruit to fall off prematurely. In the orchard referred to, several hundredyoung trees, which were expected to bear from half a bushel to two or three bushels of apples each, scarcely matured a perfect fruit, and, in fact, the ruin of the crop was complete as regards certain varieties. Duchess (sometimes called Duchess of Oldenburg) apples suffered the most, the fruit of several hundred young trees being ruined.

Red Astrachan and Charlottenthaler (yellow transparent) were also very much injured, and the fruit of several other varieties was greatly damaged by the grubs.

As no injury of this nature had been noticed in previous seasons, the important question suggested is: What was the cause of this sudden attack by such numbers of this insect? There are large quantities of wild Red Plum-trees or bushes growing along the fences within a radius of half a mile of the orchard, and for some years it has been difficult to find a good ripe plum, because of the ravages of the curculio, although the plants are white with bloom every spring. No effort has ever been made to control the curculio on these Plum-trees, but some years ago it was possible to get plenty of fairly good fruit nearly every season. Possibly the great increase in the numbers of the insect, which have multiplied here, has forced them to seek other and secondary food. If care was taken to destroy all unnecessary and uncared-for Plum-trees in the vicinity, and to properly guard those that were left, the insects probably would decrease and would not seriously affect the apples.

The affected orchard is planted in grass, the first crop of hay being taken off at the end of June, the later growth being allowed to remain on the ground. After properly guarding the trunks of the young trees, and removing any débris from their vicinity, it is proposed to burn over the stubble on some warm day during the coming spring, with the hope of destroying a large number of the beetles which have hibernated.

Later, just before and for some weeks after blossoming, it is intended to use arsenical poisons in moderate amount in combination with the fungicides for the scab, Fusicladium dendriticum, which has also become troublesome in this region in recent years. This will probably not be wholly effective, but some experiments have shown that the injuries by the beetles can be lessened by the use of poisons if care is taken that the Paris-green or London-purple is not applied so strong as to destroy the foliage.

It is possible that with a proper care of the Plum-trees, and the reduction in the numbers of the insects, they will no longer attack the apples to any serious extent; but any influence calculated to compel the curculio to resort to and acquire an increased relish for this fruit must be regarded as dangerous, to say the least. It is much more to be dreaded than the codlin-moth, which has never proved really very troublesome in this region, not one apple in a hundred being injured by it. This attack of the plum curculio on the apple, and the increase in the destructiveness of the scab fungus, furnish fresh examples of the folly of neglecting disease of any kind, even when it is scarcely noticeable or not very troublesome.

Arnold Arboretum. *J. G. Jack.*

Foreign Correspondence.

London Letter.

RANUNCULUS CORTUSÆFOLIUS.—This is the giant Buttercup of Maderia, of which I sent a brief description in a letter published in GARDEN AND FOREST, vol. v., p. 174. It has lately been introduced in quantity by means of seeds. A colored plate, representing a bunch of the elegant bright yellow flowers as large as those of Anemone Japonica, is published in *The Garden* this week, prepared from a plant flowered at St. Albans in March last. The plant is not hardy here, except in the southern counties, but it can be grown in a cold house or frame, and in the warmer states of America it would probably become naturalized. It grows to a height of four feet and has lobed, hairy leaves a foot across. It is perennial, dying down to the large fleshy root-stock for the winter.

WASHINGTONIA FILIFERA, figured on p. 535 of the last volume, appears to be well established on the Riviera, where it is as abundantly represented as any other Palm. In one garden, namely, that of Monsieur de Falbe, in Cannes, there are no less than seventy-six large specimens of it, some of them having trunks eighteen feet high and over three feet in diameter. In another garden in Cannes a specimen of this Palm flowered last year. Seeing that it was not introduced into Europe until 1875, its abundance and the large size of many of the specimens on the Riviera are remarkable. In countries where the Washingtonia requires the protection of a glass house it is almost equally happy. At any rate, in a greenhouse at Herrenhausen, near Hanover, Herr Wendland has several grand examples, and there are also some healthy fast-growing specimens of it planted out in the temperate house at Kew.

AGANISIA LEPIDA.—This is a pretty white-flowered Orchid, which was first discovered in Brazil by Monsieur J. Linden about thirty years ago, but never successfully introduced into cultivation till recently. I saw a quantity of healthy plants of it in the nursery of L'Horticulture Internationale, Brussels, in June last, and several sales of it have occurred this year in the London auction rooms. It is now figured in Monsieur Lucien Linden's *Lindenia*, t. 400, the figure representing it as a tufted plant with short pseudo-bulbs, grass-like plicated green leaves a foot long, and an elegant semi-erect flower-spike two feet long, the upper half bearing ten flowers, each as large as the flower of Odontoglossum citrosmum, and not unlike it in form, pure white, save a tinge of yellow on the disk of the labellum and the violet color of the lower part of the column. It is a terrestrial plant, according to Monsieur Linden, who also states that under cultivation it "behaves splendidly, growing freely and flowering abundantly." It was happy enough in the houses at Brussels when I saw it, and if it does prove to be a good garden-plant it is certain to become popular, which can scarcely be said of the several species of Aganisia hitherto tried in English collections. A. cyanea is one of the most beautiful of blue-flowered Orchids, but it is a bad plant to manage.

DENDROBIUM SPECIOSUM.—There is an exceptionally large specimen of this noble Australian species in flower now at Kew. It has horn-like pseudo-bulbs a foot long, each bearing several broad leathery green leaves, and terminated by one or two large spikes of yellow flowers with a few spots of purple. It was one of the first Australian Dendrobes introduced into British gardens, it having been sent to Kew in 1823 by the Kew collector, Allan Cunningham. It is grown in a warm, sunny greenhouse.

PHAJUS BLUMEI, var. ASSAMICUS.—This name was given by Reichenbach to a plant which flowered in England in 1882, and which was then described as one of the most

variable of Orchids as to color. A figure of a pale-flowered form of it is now published in *Reichenbachia*, t. 69, where Mr. Rolfe says it is closely allied to P. grandifolius, P. Wallichii and P. bicolor. Sir Joseph Hooker, in his *Flora of British India*, goes further than this, reducing all four of them to one species, for which he retains Lindley's name of P. Wallichii. From what I know of these plants, I am inclined to accept Sir Joseph Hooker's decision. It is quite clear that P. Wallichii is a widely distributed plant, and, consequently, shows considerable variation, and that it is probably nothing more than a form of the Chinese P. grandifolius. Of course, for garden purposes, distinguishing names are necessary for all the well-marked forms.

The plant called Assamicus, and figured in *Reichenbachia*, is exactly P. Wallichii in everything except color, in which respect it differs in having buff-yellow sepals and petals and a white and yellow labellum, the yellow being restricted to the tubular portion. At Kew there is a plant in flower which resembles that figured, except that the color is a shade darker and the lip is more yellow. We have no more useful Orchid than this P. Wallichii and its forms, for it is as easily cultivated as a Eucharis and it flowers freely every year. At Kew we have numerous forms of it, including bicolor, Mannii, Sanderianus and Blumei. The best of all Phajuses is, of course, the hybrid P. Cooksoni, which is also, in my opinion, the best hybrid Orchid yet raised. It is well figured in the last number of Williams' *Orchid Album*.

The Royal Horticultural Society's arrangements for the coming year are of exceptional promise. The usual number of bimonthly meetings and exhibitions will be held, and the committees of experts selected to adjudicate honors, etc., to the exhibits, comprise none but representative men. There are four committees, namely, Scientific, the members of which are chiefly botanists and entomologists, the function of this committee being diseases and the phenomena of plant-life generally. The Floral Committee deals with all new plants except Orchids, for which there is a special committee, while a subcommittee looks after all that appertains to Daffodils. There is also a committee for fruit and vegetables. The following is the list of lectures and papers promised for the bimonthly meetings. These papers are afterward published in the journal of the society, "The Deciduous Trees and Shrubs of Japan," by Mr. J. H. Veitch; "Rare Trees and Shrubs in the Arnold Arboretum. U. S. A.," by Monsieur Maurice de Vilmorin; "Hybrid Narcissi," by the Rev. G. Engleheart, M.A.; "Botanical Exploration in Borneo," by Mr. F. W. Burbidge, M.A.; "Orchids," by Sir Trevor Lawrence. Bart., President Royal Horticultural Society; "Flowering Trees and Shrubs," by Mr. G. Nicholson; "The Fertilization of Pansies," by Mr. J. D. Stuart; "On Cactaceæ," by Mr. John W. Singer; "Filmy Ferns," by Mr. J. Backhouse; "Fruit-culture in France," by Monsieur Charles Baltet; "Relations between Gardeners and their Employers," by Mr. Malcolm Dunn;

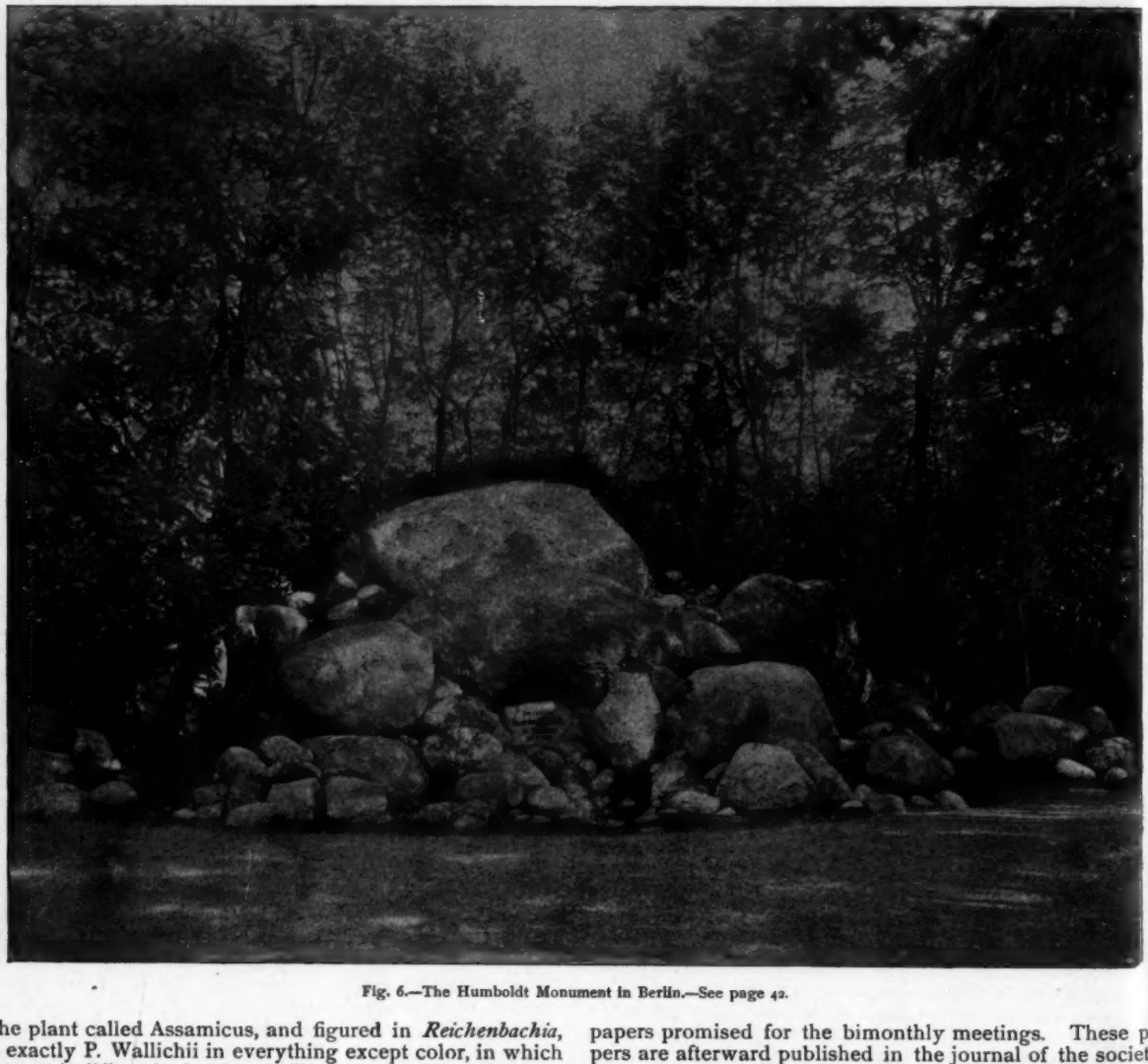

Fig. 6.—The Humboldt Monument in Berlin.—See page 42.

"Lord Bute's Vineyards," by Mr. A. Pettigrew; "How to Popularize Orchid Growing," by Mr. E. H. Woodhall; "Origin of Common Vegetables and their Value as Food," by Professor G. Henslow, M.A., F.L.S., etc.; "Chrysanthemums," by Mr. C. E. Shea; "Principles of Judging at Flower Shows," by Mr. James Douglas.

WILLIAM INGRAM.—English horticulture has sustained a serious loss through the death of Mr. Ingram, the gardener at Belvoir Castle, where he held the reins for forty years, doing first-rate work, especially among fruit and hardy alpine and herbaceous plants. He made Belvoir famous for its spring gardening by his skillful arrangement of all kinds of hardy spring-flowering plants, the whole garden wearing a natural and beautiful aspect at all times. He was an exceptionally well-informed man, ornithology and geology, as well as botany and horticulture, being pursued by him with zeal until just before his death. He was the son of the Queen's gardener at Frogmore, Windsor, where he was born in 1820. D. Lindley recommended him to be head-gardener at Hadfield, from whence he went to take charge of Belvoir Gardens in 1853.

London. *W. Watson.*

Cultural Department.

Forcing Tomatoes.

IN New England, under the most favorable conditions, tomatoes can seldom be gathered in the open air before the middle of July, and as the outdoor supply is practically exhausted by the end of October we are dependent during nearly three-fourths of the year either upon inferior tomatoes from the southern states, or upon those grown under glass by near-by market-growers.

To produce good tomatoes in winter it is not necessary to have a specially built house. They can be fruited successfully in any light house where a minimum temperature of fifty-five to sixty degrees can be maintained. We utilize an end or some other portion of a Rose-house where the shade of the Tomato-plants is not likely to injure any plants below them, and we find no difficulty in having a good supply from the time outdoor plants finish bearing until they again come in. The first sowing of seed is made about July 10th, in a cold-frame; when sufficiently large to handle, the plants are pricked off into boxes of rich loam, from which they are successively moved to four-inch, six-inch and eight-inch pots, and from the latter size to their flowering-pots, which are usually twelve inches in diameter. The compost we use consists of two parts loam to one part well-decayed cow-manure, or a less portion of pulverized sheep-manure. The pots should be well drained and the compost pressed moderately firm. It is well to leave a space of at least four inches for successive surface dressings, which are very beneficial and may be given weekly as soon as the pots are well filled with roots, and the fruit begins to swell. For this purpose a small handful of sheep-manure and Barker's hill and drill phosphate, mixed with fine loam, will be found admirable. Liquid-manure may also be applied; once a week is often enough in the depth of winter, but later in the season it can be given every other day. Tomatoes are gross feeders, and any good liquid will serve the purpose.

From plants raised from seed sown on the 10th of last July we picked the first tomatoes on November 1st, before our outdoor supply was exhausted. A Tomato-plant will fruit profitably for six months with proper care; but it is not advisable to depend on one sowing for the entire season's supply, and we make successive sowings in October, December and January. Half a dozen pots from each sowing is sufficient for all the needs of an ordinary establishment. We grow our plants in pots, so that they can be moved about, if occasion requires. While they need more attention in watering than when planted out, they are less liable to be attacked by club-foot, and, in fact, while plants in beds invariably suffer in this way, I have never had any of the disease on pot-grown plants. Opinions differ as to whether a plant grown with a single stem, or one with lateral branches is the best. We prefer the latter in every case. The leaves are less robust, the fruit comes of a better shape and there is far more of it than on the single stem specimens. Two laterals are sufficient on a plant. Once a week all extra shoots should be rubbed off, decaying leaves removed and the plants tied up; it is well also to shorten back the more elongated leaves and thus give all the light possible to the fruit during the dark winter months. Tomatoes naturally prefer a warm, dry atmosphere and should not be syringed at any time. If mildew shows itself the affected leaves must be cut off, and a mixture of sulphur and lime put on the flow pipe. Artificial fertilization of the blossoms is absolutely necessary from November to March; after that it is not required. The strings or wires may be tapped to disseminate the pollen, or the flowers can be separately gone over with a camel's-hair brush. The middle of a bright day should be taken for this operation.

I suppose every Tomato-grower has his pet forcing variety. I have tested a dozen varieties during the past four winters, and the one which stands out pre-eminently at the head of the list is Nicholson's Hybrid. The tomatoes are of small size, averaging six to eight to the pound. It sets from five to eight on a bunch in winter, and occasionally ten to fourteen; the fruit is solid, smooth and delicious in flavor. It commences to fruit when younger than any other kind and produces smaller foliage than other sorts tested. We purpose retaining Nicholson's Hybrid and growing no other until some better variety asserts itself.

Taunton, Mass. *W. N. Craig.*

Chinese Primroses.

FEW plants have been taken in hand by old-time cultivators which yielded to improvement so readily as Primula Sinensis. We are forcibly reminded of this by the rediscovery of the wild plant in the mountains of Ichang by Dr. Henry and others, after the lapse of seventy years or more. In the original plant the petals are deeply lobed in the centre and perfectly smooth at the edges, but through the selective skill of the cultivator these features are eliminated, and in their place we have a perfectly round flower, the petals thick in texture, exquisitely fringed, and of almost every conceivable shade of color except yellow. It must be remembered, also, that all of this is due to training and selection alone, and none of it to hybridizing, for P. Sinensis has hitherto refused to cross with any of its relatives; that we have pure white, deep red, crimson, pink and lavender shades of this flower from the original color, and that a poor one is a result which helps us to appreciate what can be accomplished by patient striving with a definite aim in view.

At all events, we have secured a most useful winter-flowering plant within the reach of any one who can command the use of the most modest greenhouse. Our summer weather is rather too warm to be exactly adapted to the needs of the Chinese Primrose, but in a cold frame, placed in a shady position, the plants grow well during the hottest weather, especially if the sashes are removed at night to give them the benefit of the night dews. These Primulas are most useful from November to February, a period when there is always a dearth of good pot-plants in flower, and to have good plants at this time an early start must be made, so we always sow seed the last week in March. The seed germinates slowly, and often unevenly, so that it is best to take out the largest ones as soon as they are of sufficient size to be moved, and this will give the weaker ones a chance. For potting material, good loam, leaf-mold stacked one year and chopped fine, some material from a spent Mushroom-bed, and plenty of sand added, make a compost that Primulas, Cinerarias and Cyclamens delight in. It rarely pays to pot Primulas in pots larger than a six-inch size unless huge specimen plants are required. For such a purpose the most vigorous plants may be selected during summer and grown on as vigorously as possible. Plants from seed sown earlier than the date recommended often flower prematurely, and the colors are never good until the cool winter months, neither are they seasonable. As has been said already, a cool place in summer is desirable for the growth of Primulas, but on the approach of cold damp weather in fall it is best to remove the plants to a cool greenhouse where a temperature of at least fifty degrees can be maintained at night, with a rise of a few degrees by day. Careful attention to watering is essential during the dull months of winter, or the plants decay at the level of the soil.

The so-called blue Primulas are more delicate than those of other colors; so much so that to secure good plants it is best to sow the seeds at least a month earlier than the other kinds. More warmth, too, is required in the autumn months to do them justice; but any extra attention is well repaid for the shades of lavender showing up most attractively among the intense crimsons and pure whites. Special varieties are so numerous now that it is impossible to keep account of them, but we have been much pleased this season with Rosy Queen, a beautiful soft pink, the color being uniform and the foliage Fern-leaved. Gipsy Queen is also distinct, having deep purple

leaf-stems and pure white flowers, a striking contrast that is noticed at once.

There is also an improvement in the double varieties one can obtain from seed, and these flowers last longer than the single ones, but are not so effective. A race of perfectly double Primulas was formerly cultivated and perpetuated by means of cuttings each year. These were known as Gilbert's strain, and very beautiful they were, but we do not hear much about them now, though I remember them as being very handsome, although not easy to propagate. We have heard much during the last two years of the "Moss-curled" section, varieties that have foliage much crisped at the edge, and are novel in this respect, but the flowers are poor and small, and neither single nor double. The single ones with plain foliage are far better for all purposes.

Chinese Primroses can be relied on to come true from seed if procured from good sources, and this is a great point in their favor. On the contrary, it is most difficult to obtain a good strain of Cineraria-seed. On one occasion I had such a strain, and attempted to perpetuate it by careful isolation and use of a camel's-hair brush, but the results did not warrant the attempt again. There would be a great demand for a reliable strain of Cinerarias if good seed could be obtained as readily as that of Primulas, Gloxinias, Cyclamens and Calceolarias.

South Lancaster, Mass. *E. O. Orpet.*

The Earliest Flowers.—The present winter in this section has been one of an average mild temperature, with much softening of the ground in day-time, though scarcely free from frost in any night. It might be thought that, under such conditions, the winter-flowering plants which make progress whenever the upper soil is loosened, would have come forward rather more rapidly than usual. Such has not been the case, and the first Snowdrops and Crocuses of the season are only just appearing. Of course, the first starting of vegetation in the early year is a movable feast, influenced by more or less rigid conditions of temperature, but in the majority of seasons here Galanthus Elwesii will show flower during the first two or three mild days after New Year's, and another of my tests, seeds of Scilla Sibirica, will germinate at the same time. I have observed, however, in the latter case, that temperature is only one factor, for germination does not take place freely, if at all, unless we have had a fall of snow, the melting of which seems to give the necessary quickening effect. This is a fact well known to hardy plantsmen who use this quickening action in germinating certain seeds of alpine plants; but it has interested me to watch my border for seven or eight winters and verify the fact. This may be one cause, and probably the principal one, of the delay in the flowering of my arctic and alpine plants. Such plants in their native environments are covered with snow, the melting of which releases them, and under the stimulus of abundant water in which is incorporated ammonia or other elements stored in the snow, they make in the sunlight a growth which in quickness, if not in luxuriance, can scarcely be rivaled in the tropics. Except for one or two small flurries, we have had no snow here this season, and this seems to me a sufficient reason for a fortnight's delay in such things as Anemone blanda, Galanthus Elwesii and Crocus Imperati. The first of these, as yet, makes no sign. However, in such things one can only write with a reservation, for it is only after observations extended over a term of years that one can speak with any confidence, and even confidence is tempered by the knowledge that nature sometimes works in a mysterious, and before unobserved, way.

Elizabeth, N. J. *J. N. G.*

Persimmons in New York.—My success with this fruit in this section has been remarkable this year. Cions, procured of the Secretary of the Missouri Horticultural Society, were set in 1892. In 1893 these bore masses of fruit, not scattered along the limbs, but in large clusters. It was not ripe before frost; but after a good freeze it was gathered and stored. The astringency, slightly perceptible even after freezing, soon passed entirely away. It is desirable to obtain very early varieties for this section, whereas those I have are rather late. Even these persimmons were delicious, and they make a fine addition to our November fruits. There is no question of the hardiness of seedling trees, but they are likely to be barren, as mine were, until grafted.

Clinton, N. Y. *E. P. P.*

Correspondence.

The Care of Birds in Winter.

To the Editor of Garden and Forest:

Sir,—The occupant of the Smith Lodge on the grounds of Mr. H. H. Hunnewell, at Wellesley, finds it a pleasant duty to care for the insect-feeding birds which make their winter home here. Whenever the weather is fine these birds may be seen at work searching the bark for the eggs and larvæ of insects which infest the trees in summer. In very stormy weather, and especially when the trees are coated with ice, the birds suffer severely, and they then come quite close to our back-doors in search of food. It is evident that, if we are to have birds, and wish to encourage their breeding in this vicinity, we must feed them during severe winter weather. A good plan is to place scraps of animal-food in a box protected from cats and from larger birds, such as the blue jay, which is very thievish.

The downy woodpecker, the smallest of the woodpecker family here, digs into the bark, making circular holes about a third of an inch in diameter; they are seen particularly on Apple-trees, arranged in a circle around the trunk.

The white-breasted nut-hatch, also called the trumpeter, is a most persistent worker, and probably destroys more insects than any other bird. He takes up a stretch of the tree about one foot wide, working in zigzag fashion, and when one section is finished he returns to the base of the tree, working upward only.

The red-bellied nut-hatch is similar to the preceding, but is smaller. This bird is peculiar to the Conifer districts, and an interesting characteristic is that he secures a stock of provision for himself, and no plea need, therefore, be made for a food-supply for this bird. Gathering Conifer-seeds, and particularly the fatty matter which surrounds them, he stores these in the crevices of the bark, generally on the south side.

The little brown creeper, as he goes up and down the trees, looks very much like a mouse. He sleeps in a crevice on the south side of the tree, and is very hard to discover when not moving. He has a very long bill, and no crevice escapes him, and he searches the bark of all kinds of trees.

The black-capped titmouse is familiarly known as the chickadee. This little bird follows the woodchopper wherever he goes, feeding on the grubs which are dislodged in the work of cutting down trees. All these birds are found in company, and this indicates that their food is very much the same.

Regarding the much-abused English sparrow, it was observed last summer that these birds fed their young on the caterpillars of the cabbage-butterfly. Since the sparrow, so far as observed, is rarely an insect-feeder, the birds were closely watched. It is certain that the young birds are fed with insects, but as soon as they can help themselves they become grain-feeders, like their parents.

Wellesley, Mass. *T. D. H.*

Meetings of Societies.

The Western New York Horticultural Society.—I.

NOTWITHSTANDING the depressed condition of trade, over 400 persons were in attendance at the opening session of the meeting of the Western New York Horticultural Society, in Rochester, last week, among whom were well-known fruit-growers and scientists from several states and from Canada. The annual meetings of this society are, without doubt, the most enthusiastic and important horticultural gatherings held upon the continent. Rochester is in the centre of the most varied horticultural region in the country. All the fruits of temperate climates are largely cultivated here, while, at the same time, it is the most varied nursery centre of the New World. Many other regions boast larger orchards and nurseries, but in the number of men engaged in the business, and especially in the great diversity of edible and ornamental products grown, no other territory in North America approaches it. The western New York country has always been prosperous, and, among other institutions, schools, academies and colleges have thrived, and the average grade of rural intelligence is very high. This is forcibly illustrated in the appreciative attention which papers upon ornamental plants, as well as those on fruit-culture, always receive before these annual conventions. Rochester is itself the seat of an excellent university, and Cornell University is only 125 miles away, on Cayuga Lake. The latter institution always contributes freely to the meetings, and at this session about forty of its students attended in a body. The State Experiment Station at Geneva has also been a strong factor in the maintenance of the society.

THE PRESIDENT'S ADDRESS.

President Barry congratulated the society on its flourishing condition at this its thirty-ninth annual meeting and on the large attendance even when the outlook for fruit-growers was not hopeful. He did not attempt to trace the causes which had brought suffering upon this industry. If it was from excessive production, the aim should be to produce a higher grade of fruit and to use greater care in handling, sorting and packing. There seems to be no reason why young men should desert farming and fruit-growing for other pursuits, for while only three per cent. of all merchants escape failure, hardly three per cent. of farmers fail. Statistics show that agriculture is safer than banking, manufacturing or railroading, and there is no good reason why farming and fruit-growing should not pay well if the business is conducted on correct principles and with an enthusiastic desire to excel in every particular.

Good books, weekly horticultural and agricultural papers and the reports of experiment stations are necessities for fruit-growers. Progress made in controlling injurious insects and fungus diseases has been largely due to the work of the Department of Agriculture and the various experiment stations. In combating these enemies system and co-operation are demanded throughout all fruit-growing regions, so that no breeding-places are left for parasitic fungi or destructive insects. That farmers fail to take the full advantage of the information furnished by the stations is shown by the fact that only 300,000 of them in the country receive these bulletins, which is a comparatively small fraction of the entire number.

As a matter of practical cultural advice, Mr. Barry recommended the planting of wind-breaks, not only to protect orchards against winter storms, but against such wind-storms as those of last September, which were very destructive to fruit in western New York. Such severe storms are rare, and yet it is not uncommon to have high winds in early autumn which blow down the largest and best fruit, and it is, therefore, advisable for fruit-growers to prepare for such emergencies by planting wind-breaks of evergreen or deciduous trees on the north and west sides of their orchards.

PREVENTION OF PEAR-SCAB.

Professor S. A. Beach, of the Geneva Experiment Station, gave the results of some successful efforts to control this disease during the last season. The fungus which causes the Pear-scab resembles the Apple-scab fungus in general appearance, and in its life habits, so far as they are known, and since the Bordeaux mixture had been successfully used in treating Apple-trees, the same remedy was tried in a Pear-orchard. This orchard was situated on high land, near Seneca Lake, and on account of the disease had produced little first-class fruit for several years. Two of the varieties peculiarly susceptible to the attacks of the fungus, White Doyenne and Seckel, were selected for treatment; and since the investigations have shown that this disease of the Pear, as well as the allied trouble with the Apple, begins its work before the blossoms open, part of the experiments were to test the efficacy of early treatment, and, therefore, three applications before blooming were made in some instances for comparison with the effect of two applications. The Seckel-trees treated were surrounded on all sides by unsprayed and affected trees, so that the sprayed trees were constantly open to attacks of the fungus. If an entire orchard were treated, this source of infection would be measurably obviated. One block of Seckel-trees were sprayed on the third of May, when the buds were just swelling. A week later these were treated at the same time with the second block of Seckels and the White Doyennes. The cluster-buds were then opening. The next spraying was given when the trees were just beginning to blossom, and as soon as they were out of blossom they were sprayed again, and Paris-green, at the rate of an ounce to eleven gallons, was added to the Bordeaux mixture as a protective against the codlin-moth. The experiments left it doubtful whether three treatments before blooming were better than two, but there was no doubt as to the value of the mixture as a preventive of scab. Without going into details it may be said that the cost of six treatments averaged fifty-five cents to a tree, and five treatments averaged forty-eight cents, and that the gain in the value of the marketed fruit over all expenses varied in the two varieties from $42.94 to $56.24 to every hundred trees. A severe wind-storm three weeks before the pears were picked blew down many bushels of the fruit, and but for this the showing would have been more favorable than it actually was. It should be remembered, also, that this average gain of more than $50.00 on a hundred trees from the sale of fruit does not represent all the benefit from the spraying. The treated trees had a more healthy foliage, and, therefore, they went into the winter in better condition and better prepared for a good crop next year than the unsprayed trees. This increased health and vigor of the sprayed trees was shown by the fact that during the wind-storm mentioned above a larger proportion of the fruit held on to the trees which were sprayed than on the unsprayed trees. Professor Beach seems, therefore, quite justified in saying that tens of thousands of dollars might be annually saved by the pear-growers of New York state by the adoption of this treatment to prevent the depredation of fungus and insect enemies of the pear. One pound of copper sulphate to eleven gallons of the mixture was used.

In another interesting paper on the leaf-blight of Plum and Cherry nursery stock Professor Beach showed that the advantage of using the Bordeaux mixture was seen in an increased growth both of roots and of tops and in healthier foliage, which remained on the branches a month later than the unsprayed foliage did.

THE BEST PLUMS.

One of the most interesting discussions of the Convention was upon the subject of Plum-culture, and was led by Mr. S. D. Willard, of Geneva. Mr. Willard believes that Plums are particularly influenced by soil and other local conditions, and this makes it more difficult to give general advice about them than about almost any other fruit. This may be one reason why so many persons fail in Plum-growing. Mr. Willard has had a wider range of experience than any Plum-grower in New York, and, therefore, the following lists of the best market plums for this region are unusually valuable: For the first six he names, (1) Bavay, Green Gage or Reine Claude; (2) Hudson River Purple Egg; (3) French Damson; (4) Fellenberg or Italian Prune; (5) Grand Duke; (6) Monarch. The varieties numbered 1, 4 and 5, as a rule, thrive best when top-worked on other stock, because they are poor growers. These six are enough for a commercial orchard in this region. If the list were extended to twelve, the following would be added: (7) Field; (8) Bradshaw; (9) Guii; (10) Golden Drop; (11) German Prune, if care is taken to secure the true variety and not some spurious type; (12) Peter's Yellow Gage. Of the Japan Plums he recommended Yellow Japan, the true Sweet Botan and Burbank, with Willard for very early. Lombard and Union Purple are first-rate stocks upon which to work the poor-growing varieties. In Mr. Willard's opinion the Niagara and Mooney Plums are identical with Bradshaw, the Silver Prune of California is identical with Coe's Golden Drop, while the Hungarian Prune of California is the same as Pond. The true Hungarian Prune, however, is a very different tree and fruit.

The subject of cold storage for apples was discussed in a novel way by C. H. Perkins, of Newark. He cited the instance of the cheese interests, which have been greatly benefited by co-operative manufacture. Dealers now come directly to these factories to buy. The same thing should be done with apples by establishing a system of neighborhood storage of barreled fruit. Mr. Perkins does not advise ice-storage, but the erection of large frost-proof cellars, much like the nurserymen's cellars, in which the fruit can be kept at a naturally low temperature. Mr. Perkins has such a building, erected for nursery stock, which has been used for storing apples with excellent results. This building holds 10,000 barrels, and cost $1,400. It is 100 feet by 40 feet, built upon a stone wall two feet thick and three feet high, and the sides of the structure is built of studding hemlock sheathing and building paper, comprising three air-spaces. The roof is tarred and graveled, and it has windows sufficient to light the structure. The sides are about six or seven feet high. In such a building, with double doors, the temperature need not vary over twelve degrees throughout the winter. Such a building belonging to a neighborhood should pay four years out of five to the extent of fifty cents profit on a barrel, and should make apple-growing in New York more profitable than orange-growing in California.

The display of fruit was rather large, and it was particularly valuable because of the great variety shown. Ellwanger & Barry exhibited forty varieties of pears, forty of grapes and twenty-five of apples, and other exhibitors made displays of special varieties. The Anjou pear was the most noticeable single variety of fruit on exhibition. The Boiken apple, one of the more recent Russian introductions, was shown in fine condition, and attracted attention for beauty and long-keeping qualities. Its quality is fair. Longfield, a Russian apple of great beauty and productiveness, was also on exhibition. The specimens of Josephine de Malines, one of the prominent but little-known winter pears, were taken from cellars, and not from special cold-storage houses, and the display was an excel-

lent illustration of the possibilities of fruit-culture for domestic as well as commercial purposes.

The newly introduced Japanese plums were the subject of important discussions. Many growers have now had experience with these fruits, and all agree in pronouncing the varieties, except, of course, the Kelsey, hardy in New York. The chief varieties so far tested are the Abundance, Burbank, Willard, Ogon and Satsuma. These are all remarkably productive and the fruits are showy and long-keepers. Willard is the earliest, ripening at Geneva in the middle of July; Burbank ripens early in September and is probably the best in quality. Many growers have planted several hundred trees of these Japanese Plums, and it was evident from the discussion that they are considered important additions to our stone-fruits.

An interesting discussion turned upon the last year's prices for Chautauqua grapes. The average price throughout the season for Concords and Wordens was eleven cents for a nine-pound basket. But it was agreed that even at this price grapes were much more profitable than general farming; and at twelve cents they pay fairly well. This will not apply, however, to the Catawba industry in the interior regions. In 1892, the receipts for grapes in the Chautauqua region were considerably over $1,000,000, while in 1893, with an increased production of more than 300 car-loads, the total receipts fell to $809,000.

Among Currants, the White Imperial received great praise for home use, because of its sweetness, while North Star, a new, brilliant red variety, of good quality and long clusters, was favorably mentioned for market. The Wilder currant was also commended.

Notes.

One of the beautiful trees on the grounds of the United States Botanic Garden at Washington is a Wahoo, Ulmus alata, which even in the winter season has a peculiar grace on account of its very slender branchlets. A little more than seven feet from the ground the trunk divides regularly into branches which spread over a circle sixty feet in diameter. The tree is fifty-five feet high, and its trunk girths five feet at two feet above the ground.

The shipment of currants last year from the Greek ports amounted to about 105,000 tons, of which 15,500 came to the United States and Canada. A heavy stock is reported as still remaining in Greece, and yet the value of the fruit here is now only one and three-eighths cents a pound in barrels, and one and one-half cents a pound in cases. Of course, this does not cover the cost of importation, and the business is being done at an actual loss. Nevertheless, the tendency of the market is downward, so that currants at present prices are by no means costly luxuries, but a very cheap food staple.

Since Vitis Coignetiæ was mentioned in these columns there has been considerable discussion about the plant in the European horticultural journals and a general complaint has been made that it is difficult to propagate. Mr. Jackson Dawson, of the Arnold Arboretum, has found no more trouble with it than with many other Grapes. Cuttings are taken three or four eyes long of well-ripened wood in November. They are put in a box of soil and kept in a cold pit until January, and then brought into a temperature of about forty-five to fifty degrees at night, with an increase of ten to fifteen degrees during the day, and they root very well. An experiment in grafting a few cions of V. Coignetiæ on stocks of V. riparia also succeeded. Seed can be had, however, fresh from Japan, and in this way the plant can be grown in abundance.

At the last exhibition of the Massachusetts Horticultural Society several first-class certificates of merit were awarded to Mr. William Robinson, gardener of Mrs. F. L. Ames, for hybrid Orchids, besides a silver medal for skill in producing many of them. Among the most interesting were Masdevallia Rebecca, a cross between M. ignea and M. amabilis; Masdevallia Mary Ames, a hybrid between M. ignea and M. Gairsiana; Masdevallia Henrietta, a cross between Shuttleworth's variety of M. caudata and M. ignea. An interesting Selenipedium named Helenæ was a cross between S. Wallisii and S. leucorrhodon. Other plants from Mrs. Ames' collection were the very rare Lælia Mossiæ Digbyana, a magnificent plant of L. anceps Sanderiana, and another of L. anceps Schroederi. Other exhibitions of merit were made by Charles Storer, Jackson Dawson and Kenneth Finlayson, gardener to Dr. C. G. Weld.

The *Rural New Yorker* considers the Columbus Gooseberry, introduced by Messrs. Ellwanger & Barry, the best variety yet produced, as it bears a large berry and is free from mildew. The bushes yield abundantly in full sunshine, and the berries do not suffer from rot nor the leaves from mildew. A new Gooseberry, named the Carman, not yet introduced, seems to have the good qualities of the Columbus, and it ripens ten days earlier. A berry named the Chautauqua, now offered by Mr. Lewis Roesch, of Fredonia, New York, when planted in gravelly loam in the shade of an Apple and Peach orchard was perfectly healthy, and for many years bore crops of remarkably large and beautiful fruit. After the trees were removed the bushes were subject to mildew, and the variety was no longer propagated. Since it has been found that spraying with sulphite of potassium easily overcomes the mildew, Mr. Roesch is again offering it for sale. The Chautauqua is a vigorous, upright grower, with large dark green leaves, fruit of light yellow color, free from spines, and from one inch to an inch and a quarter in diameter. The fruit is said to be thick-skinned, but sweet and well flavored.

To facilitate the unloading of bananas from the steamers, a patented device of an endless canvas belt is being put in one of the best-equipped lines running regularly between Jamaica and New York. Pockets are arranged on the belt at intervals of three feet, each carrying a bunch of the fruit to the deck, where it passes into the arms of a man. By this improved method the bananas are handled by less than half as many men as in the old way, and entirely escape bruising by being passed through so many hands. It is purposed to have a belt for each hatch, operated by the hoisting-engine, and each belt can lift 1,800 bunches in an hour. The Jamaica banana steamer last week included in the cargo something of a rarity in several crates of cucumbers of excellent quality and several barrels of so-called Jamaica papaws. Good mangoes from Cuba have been seen in the fancy fruit-stores as low as five cents each. Strawberries from Florida are coming in increasing quantities and at reasonable prices; the best bring seventy-five cents a quart. Occasional offerings of Coe's Late Red plums of fair quality show the remarkable possibilities of this variety as a winter fruit.

Broom Sedge, Andropogon Virginicus, is generally considered a troublesome weed in the south, and yet many permanent pastures owe much of their value to it. This grass starts early in the spring, when cattle and sheep relish it and seem to thrive. When it has attained full growth its tall, hard, rough and wiry stems are rejected by horses and cattle, a circumstance which has given it a bad repute; but it has the merit of growing on dry, sandy soil where other grasses fail, and in Pine-woods, and while green and tender it furnishes most of the food which stock can get in such places. At the Maryland Experiment Station the hard stems and blades of mature Broom Sedge were cut up, and before they were entirely dry, run through a fodder-cutter and placed in alternate layers with corn-stalks in the silo. According to a report in *Agricultural Science*, this grass came out during the winter in good condition and was eaten with relish by the stock. A sample of the Broom Sedge silage, which was analyzed, shows that it contained more of the essential constituents of food than the corn, and this would indicate that this grass, which has been considered worthless, may add much to the supplies of good winter forage in the south.

At the late meeting of the New Jersey Horticultural Society at Trenton there was general complaint that the Paris-green bought as an insecticide is not of uniform quality. An instance was cited where in a potato-growing district a farmer found after he had sprayed with a machine more than a hundred acres of Potatoes that the beetles were still alive and that the labor and material applied had all been wasted, although he had used exactly the same quantity which had been sufficient for his purpose the year before. He was compelled to go over the same fields again and use a mixture twice as strong. In the case of Potatoes and Currants one can soon tell whether the Paris-green is effective by its immediate effect on the beetles and larvæ, but in the case of the codlin-moth it is often impossible for the fruit grower to know immediately whether the poison used is efficient or not. It was said that in states where the sale of fertilizers is under control the same precautions could be used with the arsenites and other poisons; that is, dealers could be obliged to guarantee the proportion of arsenic or other active poison in the compounds they sell just as they guarantee the composition of fertilizers. It may be, however, that the difference in effectiveness between one brand of Paris-green and another consists not in the percentage of arsenic which each contains, but in the coarseness of the grain. This is a point which it would be easy to determine.